ADL R&D PROGRAM

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Overview

In cooperation with TRADOC DCST, the ADL research and developments program will combine efforts of STRICOM and the U.S. Army Research Institute to introduce collaborative training into the Total Army Distance Learning Program (TADLP). It eventually will enable education and training of forward deployed Future Combat System (FCS) and Combat Service Support units via Internet technologies. These technologies will provide effective methods and procedures for the use of Web-based, collaborative training environments, including a diverse array of support tools such as desktop video-teleconferencing, multi-player game technologies, and asynchronous learning tools. In FY01, applications and tests of different training methods and procedures in a variety of scenarios will determine how best to match training objectives with the capabilities of web-based technologies. Prototype collaborative web-based training environments will be developed that comply with DoD INFOSEC policy. In FY02, Intelligent Tutoring systems will be developed to provide the student "individualized" instructional support of cognitive training tasks. In FY03, development of virtual team members and virtual instructors will allow for missing team members, supporting the "anytime-anywhere" training paradigm.

ADL Science & Technology Objective

Training Tools for Web-based Collaborative Environments

Goal: To introduce *collaborative team training environments* into the Total Army Distance Learning Program (TADLP) and eventually enable education and training of forward deployed Future Combat System (FCS) and Combat Service Support units via Internet technologies

- **Best practices for use of Web-based training**

- **Diverse array of web-based collaborative training tools**

- **Over-learning with increased retention and improved readiness**

- **More accessible training on-demand**

- **Reduced time away from unit and home station**

TADLP

Other Learners

Desktop VTC

Facilitator Instructor

Distance Learner

Simulations

Subject Matter Experts

Asynchronous Learning Tools

Battle Command Battle Lab

Web-based, Tactical Decision making game:
- Brigade Cdrs
- Mission Planning & Execution
- Computer Generated Forces
- 2D/3D Graphics
- Collaboration over the Web

Provide the Warfighter a low-cost, low-overhead PC-based opportunity to explore current and future combat operations, sharpen tactical decision making skills, and broaden tactical experiential horizons

Individual Combatant (MOUT)

- Web-based Simulation
  - Virtual Reality Modeling Language (VRML)
  - Provides rich 3D environment
  - Low-bandwidth connectivity

- Java Programming Language
  - Platform independent
  - Simple web browser interface

- High Level Architecture (HLA)
  - Distributed Interactive Simulation
  - Collaborative Training Environment
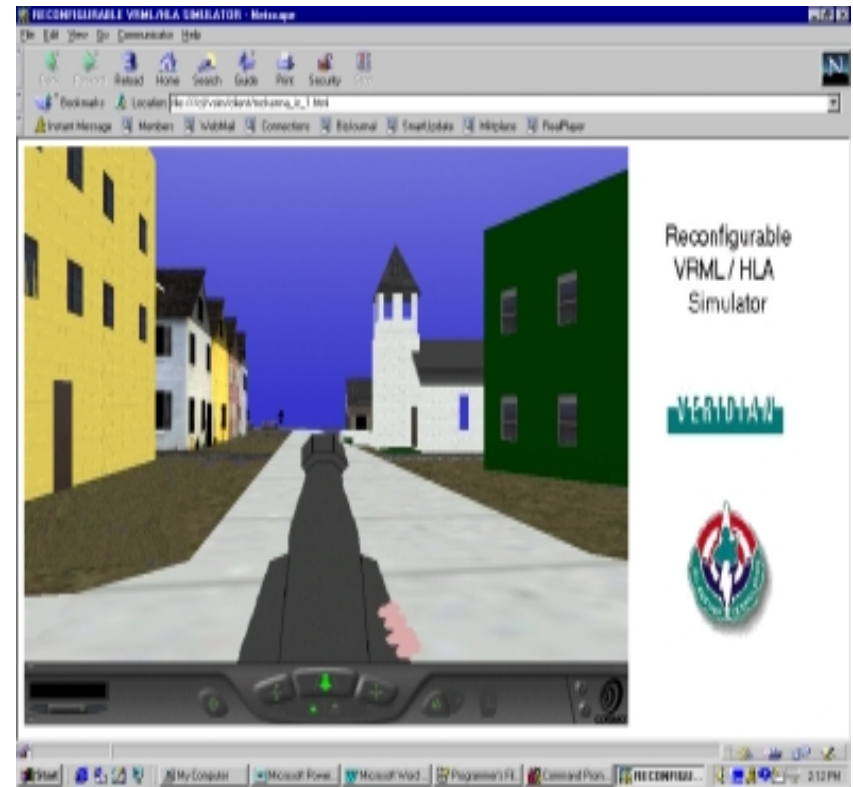
Armor School (Ft Knox)

- Incorporation of Spearhead II into the Armor Captains Career Course (ACCC) - Distance Learning (DL)
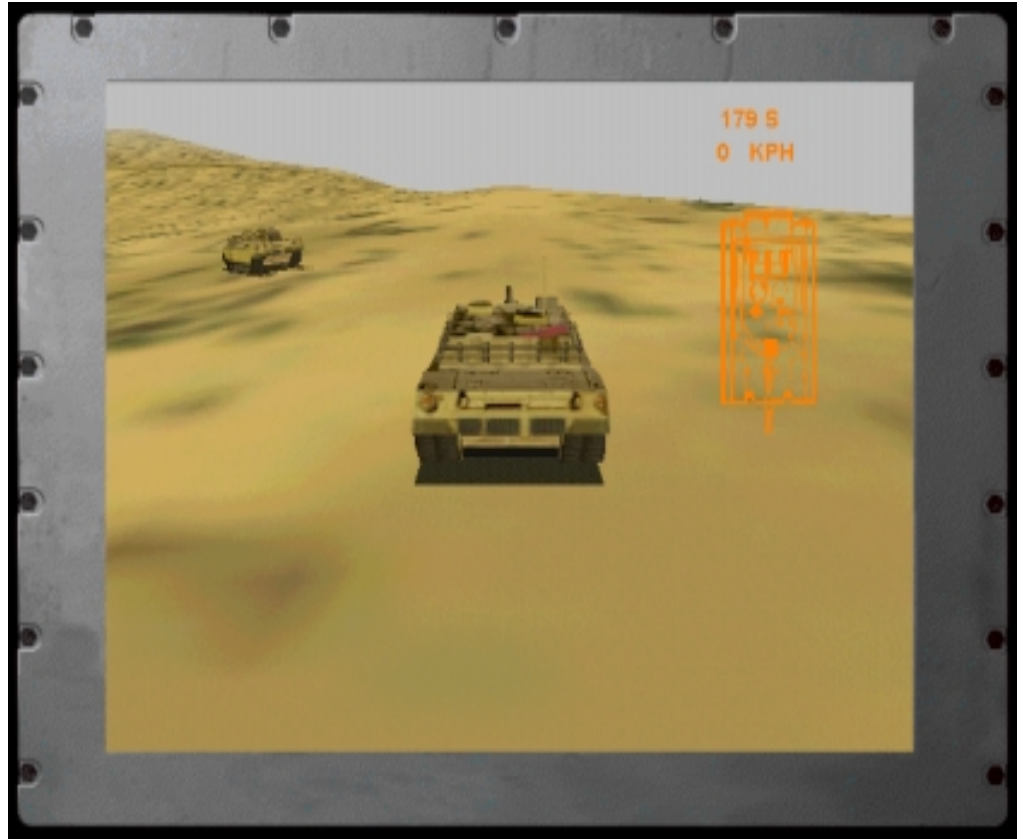
ADLP Course
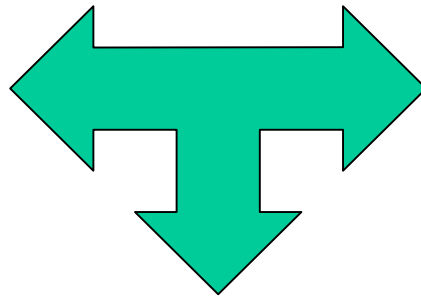
Interactive Training Game

Enhance Distance Learning by enabling students to rehearse and reinforce what they learn through simulation

Spearhead II

PC-based, Tank Simulation:

- Tank and Platoon Cdrs
- Computer Generated Forces
- 2D/3D Graphics
- Collaboration over the Web

Training Effectiveness of PC Games

- Conduct a meta-analysis of recent research on PC game learning effectiveness.

- Design *Game Learning Matrix* to include selection of the subject games, metrics, and learning outcomes

- Conduct experiments, using a mix of subjects including UCF students, STRICOM personnel, and military personnel

- Document the results of the experiments in the form of the matrix and a final report

Intelligent Tutoring Systems

• Embedded systems for training out in the field, where an instructor is not typically present.

• An Intelligent Tutoring System (ITS) assumes duties normally performed by the instructor

• Supports complex cognitive tasks including:
- system operations
- decision-making